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ABSTRACT

Recurring claims of the poor relationship of computer adoption and organizational productivity may be of interest to communication scientists who study computer mediated communication (CMC). Cognitive science researchers advocate the same solution to this problem as many communication scientists, i.e., formative research. Iterating design and user input into a feedback loop will lead to continual testing and locating of bugs until skills with computers increase. Perhaps it will be useful for CMC researchers to look more at how productivity in the workplace is related to new communication technologies, such as electronic mail, computer conferencing, and decision support systems. More research about CMC and productivity which can specify how CMC is different from the general pattern of computers and productivity is needed. (RS)

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IS COMPUTER-MEDIATED COMMUNICATION CONTRIBUTING TO ORGANIZATIONAL PRODUCTIVITY?

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

A few days ago, I listened to a fascinating presentation by Tom Landauer, Director of Cognitive Science Research at Bellcore, about the problems of computers enhancing productivity in organizations. [1] He pointed out that many scholars who have analyzed the relationship of organizational adoption of computers with productivity, claim that there is bad news in the data. Landauer agrees with many of their claims. However, Landauer has specific recommendations for reversing the poor relationship of computer adoption and organizational productivity. I wonder if what he says also applies to the use of computer systems

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for electronic mail, computer conferencing, and decision support systems. Communication scientists who study CMC systems may have to get involved in some of these issues.

Landauer makes the following claims about computers and productivity:

a) Before 1973, organizational productivity in the U.S. was increasing. After 1973, when computers were adopted, productivity began to decline.

b) Whether word processing, data retrieval, document processing, meeting support systems, or even ATMs, the amount of use and its relationship to returns on investments are poor.

Landauer says that the problem of computers not increasing, and maybe even decreasing, productivity is attributable to the fact that computers are difficult to use for most people. He argues that the computer literate are not aware of this. For example, computer programmers who type 100 wpm, tend to assume that using a computer keyboard is child's play. He argues that there is more statistical variance among organizational employees for ease of computer use than for ease of doing manual tasks. He also notes that adeptness of using natural language programs is directly related to verbal fluency. When computer programmers design

their programs, according to Landauer, they evaluate them by themselves or in conversation with with colleagues. User input into program design is rare. Of course, he notes that there are some exceptions.

It is interesting to see that Landauer advocates the same solution to this problem that Rice, Rogers and other communication scientists have proposed for CMC design and implementation: formative research. He argues that iterating design and user input into a feedback loop will lead to continual testing and locating of bugs until skills with the computers increase.

Perhaps it will be useful for CMC researchers to look more at how productivity in the workplace is related to new communication technologies. There are two approaches to productivity that Landauer defines: a) labor productivity which is goods or services provided per unit of time, and b) multi-factor productivity concepts. Is it enough that CMC systems provide new, effective channels of organizational communication? Or should we specify what types of work that CMC systems aid in relation to enhancing productivity as defined in specific contexts?

If computers and organizational productivity are not positively (in a substantial sense) related at this time, some observers might conclude that CMC technology may also

be unrelated to better work in organizations. I believe that CMC may, in fact, contribute to increasing productivity under conditions of skilled use and encouraging management. We do not yet know what these conditions are and it is not helping anyone understand the situation by saying that productivity cannot be measured. We need more research about CMC and productivity which can specify how CMC is different from the general pattern that Landauer notes about computer use in general. I would like to hear from anyone who has some ideas about how to do this.

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[1] Landauer, T. (1994). How to fix computers: Usefulness, usability, and productivity. Talk given to Department of Psychology and Computing Research Laboratory colloquium, January 20, New Mexico State University.